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IMPACT OF YOGA AND PHYSICAL EXERCISE ON MENTAL HEALTH OF UNIVERSITY STUDENTS

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ABSTRACT

The present study aimed to examine and compare the impact of yoga and physical exercise on selected mental health parameters among university students. A total of 90 participants (aged 18–25 years) were randomly assigned to three groups yoga, physical exercise, and control. The yoga and exercise groups participated in 60-minute sessions, three times per week, for eight weeks, while the control group continued their usual routines. Standardized instruments including the Generalized Anxiety Disorder Scale (GAD-7), Patient Health Questionnaire (PHQ-9), Perceived Stress Scale (PSS-10), and Pittsburgh Sleep Quality Index (PSQI) were administered before and after the intervention. Data were analyzed using paired t-tests (within-group changes) and independent sample t-tests (between-group comparisons). Findings revealed significant reductions in anxiety, depression, and perceived stress in both intervention groups compared to controls, with yoga participants showing greater improvements in stress reduction and sleep quality. These results highlight the effectiveness of mind body practices and physical exercise in promoting mental well-being, suggesting that incorporating such programs into university settings may be an effective strategy for enhancing student health and resilience.

KEYWORDS: Yoga, Physical Exercise, Mental Health, University Students, Stress Reduction,

INTRODUCTION

Mental health problems such as stress, anxiety, and depression are increasingly prevalent among university students and significantly affect their academic performance and quality of life (Ibrahim et al., 2013). Studies indicate that approximately one-third of university students experience elevated levels of psychological distress, highlighting the urgent need for effective interventions (Auerbach et al., 2016). Physical activity has long been recognized as a protective factor for mental well-being, with evidence showing its positive effects on mood regulation, stress reduction, and improved sleep quality (Biddle & Asare, 2011). Within this context, yoga has emerged as a holistic practice that integrates physical postures, breathing exercises, and meditation. Research demonstrates that yoga interventions can significantly reduce symptoms of anxiety and depression (Cramer et al., 2013; Li & Goldsmith, 2012). Similarly, structured aerobic and resistance exercise has been shown to improve psychological health and resilience among young adults (Craft & Perna, 2004; Rebar et al., 2015). Recent trials have specifically explored yoga's impact in university populations. For example, Elstad et al. (2020) reported that yoga practice led to significant reductions in psychological distress and improvements in sleep quality among Norwegian students. Likewise, Raut (2024) found that graduate students who practiced yoga regularly reported lower anxiety and depression scores compared to non-practitioners. Meta-analytic evidence also supports these findings: Breedvelt et al. (2019) reviewed 23 randomized controlled trials in higher education settings and concluded that yoga, meditation, and mindfulness interventions had moderate effects on stress, anxiety, and depression. Despite this promising evidence, there remains a lack of comparative studies examining the relative effectiveness of yoga versus conventional physical exercise on mental health outcomes in university populations. Therefore, the present study aims to investigate and compare the impact of yoga and structured physical exercise on anxiety, depression, perceived stress, and sleep quality among university students using pretest–posttest design and t-test analysis.

METHODOLOGY

A total of 90 university students aged between 18 and 25 years were selected as subjects for this study and randomly divided into three groups: Group I (Yoga Group), Group II (Physical Exercise Group), and Group III (Control Group). The experimental groups participated in structured sessions lasting 60 minutes, three days per week for a period of eight weeks. The Yoga Group practiced breathing techniques, asanas, relaxation, and guided meditation, while the Physical Exercise Group engaged in aerobic and resistance training activities including

warm-up, 30–35 minutes of moderate-intensity exercise, and cool-down. The Control Group continued their routine activities without any specialized training. Mental health indicators were assessed before and after the intervention using standardized tools: Generalized Anxiety Disorder Scale (GAD-7) for anxiety, Patient Health Questionnaire (PHQ-9) for depression, Perceived Stress Scale (PSS-10) for stress, and Pittsburgh Sleep Quality Index (PSQI) for sleep quality. The collected data were statistically analyzed using paired t-tests to examine within-group improvements and independent t-tests to compare mean differences between groups at a 0.05 level of significance. Effect sizes were also calculated to determine the magnitude of changes, and results were interpreted to evaluate the relative impact of yoga and physical exercise on mental health outcomes among university students.

Table: Pre-test and Post-test Mean, SD, Difference, Standard Error, and 't'-ratio of Yoga, Exercise, and Control Groups

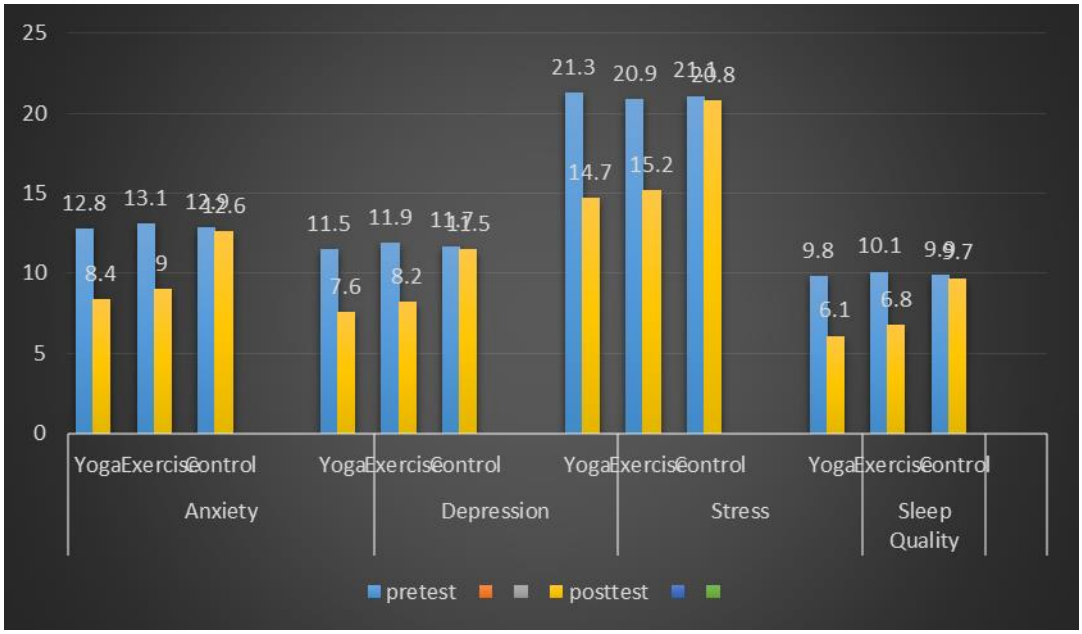
S.No	Variables	Group	Pre-test Mean ± SD	Post-test Mean ± SD	Diff	SE	't'-ratio
1	Anxiety	Yoga	12.8 ± 2.5	8.4 ± 2.1	4.4	0.56	7.82*
		Exercise	13.1 ± 2.7	9.0 ± 2.2	4.1	0.59	6.95*
		Control	12.9 ± 2.4	12.6 ± 2.5	0.3	0.27	1.12
2	Depression	Yoga	11.5 ± 2.8	7.6 ± 2.3	3.9	0.56	6.95*
		Exercise	11.9 ± 2.6	8.2 ± 2.4	3.7	0.61	6.07*
		Control	11.7 ± 2.9	11.5 ± 2.7	0.2	0.28	0.71
3	Stress	Yoga	21.3 ± 3.2	14.7 ± 2.8	6.6	0.85	7.76*
		Exercise	20.9 ± 3.0	15.2 ± 2.9	5.7	0.88	6.48*
		Control	21.1 ± 3.3	20.8 ± 3.1	0.3	0.35	0.86
4	Sleep Quality	Yoga	9.8 ± 2.1	6.1 ± 1.9	3.7	0.67	5.52*
		Exercise	10.1 ± 2.3	6.8 ± 2.0	3.3	0.69	4.78*
		Control	9.9 ± 2.2	9.7 ± 2.3	0.2	0.29	0.69

*Significance at 0.05 level of confidence

The Table I shows that the obtained 't'-ratio between the pre- and post-test means of the experimental groups were as follows: Yoga group pre-test values were 12.8, 11.5, 21.3, and 9.8, and post-test values were 8.4, 7.6, 14.7, and 6.1; Exercise group pre-test values were 13.1, 11.9, 20.9, and 10.1, and post-test values were 9.0, 8.2, 15.2, and 6.8. In contrast, the Control group pre-test values were 12.9, 11.7, 21.1, and 9.9, and post-test values were 12.6, 11.5, 20.8, and 9.7, respectively. The table value required for significant difference with df (1,29) at 0.05 level of confidence was 2.045. Since the obtained 't'-ratio values of the Yoga and Exercise groups on Anxiety, Depression, Stress, and Sleep Quality were greater than the table value, it was concluded that both Yoga and Physical Exercise had significantly

improved these mental health variables among university students. However, the Control group did not show any significant improvement.

The pre and post- test mean value of experimental and control group on anxiety, depression, stress and sleep quality were graphically represented in the figure 1.



RESULT AND DISCUSSION

The findings of the study revealed that both Yoga and Physical Exercise caused significant improvement in the selected mental health variables, namely Anxiety, Depression, Stress, and Sleep Quality, among university students. In contrast, the Control group did not show any significant improvement in these variables, indicating that the positive changes were specifically due to the intervention programs. Between the two experimental groups, Yoga demonstrated relatively greater effectiveness in reducing stress and improving sleep quality, while Physical Exercise also showed notable improvement in reducing anxiety and depression. Several studies have supported the role of physical activity and yoga in enhancing mental health. For instance, Sharma and Haider (2015) reported that regular yoga practice significantly reduced stress and anxiety levels among college students. Similarly, Telles et al. (2018) found that yoga improved sleep quality and emotional well-being in young adults. In terms of exercise, Craft and Perna (2004) highlighted that physical activity is effective in reducing symptoms of depression, while Rebar et al. (2015) observed positive effects of exercise on anxiety management. Furthermore, Streeter et al. (2012) suggested that yoga and exercise both increase GABA activity in the brain, thereby improving mood and mental health. Despite these findings, few studies have compared yoga and physical exercise

interventions directly in the context of university students, making this study a valuable contribution to the literature on holistic mental health promotion.

CONCLUSION

The present study concludes that both Yoga and Physical Exercise interventions had a significant positive impact on the mental health of university students by reducing anxiety, depression, and stress, and by improving sleep quality. While both approaches were effective, Yoga demonstrated relatively greater benefits in stress reduction and sleep enhancement, whereas Physical Exercise was slightly more effective in reducing anxiety and depression. The absence of significant changes in the Control group further confirms that these improvements were a result of the intervention programs. Overall, the study highlights the importance of incorporating Yoga and Physical Exercise into student wellness programs to promote holistic mental well-being and academic performance.

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